SEBASTIAN RODRIGUEZ

Fourth year PhD student in the department of statistics at Northwestern University with over four years of research experience in statistical modeling involving time-series analysis, epidemiology, optimization, and machine learning. I have published multiple scientific papers with interdisciplinary focuses bridging the knowledge from statistical modeling and epidemiology, and statistical modeling and computer science. My current focus is in applying spatio-temporal models to quantify the efficacy of malaria interventions in sub-Saharan Africa.

SELECTED POSITIONS

present | 2020

T37 Northwestern University Minority Health and Health Disparities Research Training Program (NU-MHRT) pre-doctoral fellow

Statistics Deparment; Malaria Modeling Research Group (Gerardin's Lab)

Northwestern University

- Applied statistical modeling to health facility routine case data from Burkina Faso to quantify changing trends in malaria incidence in the presence of changing health care policies.
- Collaborated with in country partners and partners at the WHO Global Malaria Programme to parse and manipulate this messy dataset to gain insights on the effectiveness of newly introduced preventative interventions.
- Presented our work to researchers from diverse backgrounds in several global health and epidemological conferences and symposia including ASTMH in 2020 and are currently preparing 2 manuscripts.

2017 | 2014

Undergraduate research assistant

Department of Applied Mathematics (Harish Bhat)

University of California, Merced

- Applied statistical analysis tools in R, Python, and Spark to fit high-dimensional, non-linear models (Random Forests, SVMs) to large datasets, handling big data problems by integrating mongoDB and Hadoop to map and reduce our data.
- Modeled basketball data by inferring stochastic continuous-time Markov chains from the data and presented our work at multiple statistical and machine learning conferences.
- Expanded on research by exploring semi-Markov models and using optimization to develop subproblems to improve our model fit.

2016

California Alliance for Minority Participation (CAMP) research fellow

Department of Applied Mathematics (Harish Bhat)

University of California, Merced

- Expanded our research on predicting NBA games with machine learning and stochastic modeling techniques.
- Created a talk and poster presentation for Joint Statistical Meetings (JSM) 2016.
- Helped lead discussions on expanding access to research and graduate programs for underrepresented minorities in California.

2015

Sales Planning Analaysis Intern

PlayStation

San Mateo, CA

- Conducted analysis on in house products to ascertain possible retailer specific marketing strategies using Apache Hadoop and Hive to query and aggregate massive datasets.
- Presented business insights on emergent products to company CEOs and VPs of sales and marketing.
- Processed massive datasets to leverage business insights with Excel and a small amount of Tableau.

Northwestern University Malaria Modeling

CONTACT

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LANGUAGE SKILLS

- R
- Python
- MATLAB
- C/C++
- LaTeX

2014

Software Development Team Intern

Zeptoo — San Jose, Costa Rica; Berkeley, CA

- Worked with a team of software engineers to develop the Airbanq Android application for alpha testing.
- Conducted alpha tests in Fruitvale, Oakland, where we worked through a community cash checking store and borrowed their expertise and clientele to conduct our field tests.
- Worked closely with the product owner, the investing partners, and the lead software architect to coordinate and plan the alpha tests, as well as to interpret and communicate the test findings to the development team.

2013

Interning Software Developer

TecApro — San Jose, Costa Rica

- Created an Android application to keep tracks of changes to building blueprints.
- Helped the company break into the mobile application industry by helping them prototype their first application.
- Worked independently on this project, receiving support from the team of software engineers at TecApro.

EDUCATION

present | 2017

PhD, Statistics

Department of Statistics — Northwestern University

- Dissertation: Spatio-temporal modeling to quantify the efficacy of malaria interventions in Burkina Faso
- Recipient of the Northwestern University Minority Health and Health Disparities Research Training Program (NU-MHRT) training grant.

2017 | 2012

Bachelors of Science, Computer Science & Engineering; Applied Mathematics (Computational Statistics emphasis)

School of Engineering; Department of Applied Mathematics — University of California, Merced

- Resarch under Harish Bhat in the department of mathematics and Alberto Cerpa in the department of EECS at the University of California, Merced.
- Recipient of the Outstanding Undergraduate Student Award in Natural Sciences (2017).
- Undergraduate Representative of the UC Merced SIAM chapter

SELECTED TALKS & PUBLICATIONS

2019

Driving Markov Chains to Desired Equilibria via Linear Programming

Asilomar Conference on Signals, Systems & Computers 2019 — University of California, Merced

- Authored with Harish Bhat and Li-Hsuan Huang.
- Work presented by Dr. Bhat at Alismomar conference.
- Paper published into the conference precedings.

2015

Learning Stochastic Models for Basketball Substitutions using Play-by-Play Data

ECML PKDD 2015 - European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases — University of California, Merced

- Work conducted as undergraduate research under Dr. Harish Bhat at the University of California, Merced.
- Poster presented by Dr. Bhat.
- Paper published into the conference precedings.

2015

Citation Prediction Using Diverse Features

ICDM 2015 workshop

University of California, Merced

- Work conducted as undergraduate research under Harish Bhat at the University of California, Merced.
- Authored with Dr. Harish Bhat, Dr. Li-Hsuan Huang, Dr. Rick Dale, and Dr. Evan Heit.
- Work presented by Dr. Heit at International Conference on Data Mining Workshop (ICDMW) 2015.

2020

Quantifying the protective efficacy of seasonal malaria chemoprevention under programmatic implementation in Burkina Faso using routine case data

Global Health Day 2020

Northwestern University

- Poster presentation of ongoing project conducted at the Gerardin malaria lab at Northwestern University under the supervision of my advisors Dr. Noelle Samia and Dr. Jaline Gerardin.

2020

Quantifying the protective efficacy of seasonal malaria chemoprevention under programmatic implementation in Burkina Faso using routine case data

ASTMH 2020

Northwestern University

- Poster presentation of ongoing project conducted at the Gerardin malaria lab at Northwestern University under the supervision of my advisors Dr. Noelle Samia and Dr. Jaline Gerardin.

2019

Analyzing the Spatial Variability in Protective Efficacy of SMC in Burkina Faso under Programmatic Implementation

Global Health Day 2019

Northwestern University

- Poster presentation of project conducted at the Gerardin malaria lab at Northwestern University under the supervision of my advisors Dr. Noelle Samia and Dr. Jaline Gerardin.

2016

Using Play-by-Play Data to Model, Simulate, and Predict NBA Games

JSM 2016

University of California, Merced

- Presented orally and with poster at JSM 2016 on work conducted under Dr. Harish Bhat at the University of California, Merced.

2016

Using Play-by-Play Data to Model, Simulate, and Predict NBA Games

MMDS 2016

University of California, Merced

- Presented a poster at MMDS 2016 on work conducted under Dr. Harish Bhat at the University of California, Merced.